1875MNRAS..36...81P

solar corona next to the Sun's disk, and showing no sharp outline, but fading away with a very rapid decrease of brilliancy."

And in a subsequent letter, dated Prague, November 17, 1875, he has sent to the Society some copies of photographs of the Sun made by him at the beginning and end of the stormy period beginning November 6, at 6^h mean time of Prague, and ending at night, November 14.

Dates of Photographs.

		h m	
1	Nov. 6	3 0	Busch's Refractor.
1, 2	Nov. 6	3 30	Steinheil's Aplanatic.
3, 4	Nov. 14	2 20	" "
5, 6	Nov. 14	2 35	" "

Remarks upon two Papers by Colonel Tennant. By the Rev. Prof. C. Pritchard.

In the last Number of the *Monthly Notices* Colonel Tennant has done me the honour of referring to two articles of mine communicated to the Royal Astronomical Society. These remarks, arising from so eminent a source, require a respectful consideration from myself.

The first relates to the mode of obtaining a bright and steady image of a star, or of a wire, by reflection from quicksilver; and Colonel Tennant implies that he found some difficulty in the application of the method which I proposed in the *Monthly Notices* for January 1853. On the other hand, after long and varied experience, we find the constant application of the method not only a convenience, but even a luxury, in observations. If Colonel Tennant will do me the favour of consulting my paper he will find that the chief requisites for ensuring success are three. First, the amalgamation must be perfect; and for this end it is absolutely necessary that the surface of the copper should be clean, that is to say, it must be copper, and neither dust nor grease. Secondly, the pond of mercury must be shallow throughout, and in no part exceed (say) one-twentieth of an inch in depth. Thirdly, some ready means must be provided for skimming from the surface the very objectionable film which inevitably rises to the top, and which is due to the mere fact of amalgamation. These means are described fully in my paper, and I attribute the failures which have arisen in the adoption of the method to the non-observance of these simple but necessary precautions.

With us at Oxford the whole operation of renewing a faultlessly bright and steady reflecting surface is the work of less

1875MNRAS..36...81P

than two minutes, and the surface is then so stable, and the cessation of all tremor so rapid, that we are annoyed neither by the presence of persons in the room, *nor by wind*, nor by the passage of heavy vehicles at a distance of three hundred yards. Our support for the mercury-trough, in the case of one of the instruments, is simply an iron frame, the four legs of which, after striding across the base of the instrument, rest on the stone pier.

I remember that on one occasion an eminent firm of opticians having been requested to adapt this method to a very large transit instrument, despatched a copper vessel of the dimensions of an ordinary copper preserving-pan; moreover, the bottom had been most carefully planished, and not without oil. The Nemesis was the abandonment of the method altogether.

Like many other presumed inventions, I find that I have been anticipated; but, as I at present believe, only partly so. Mr. Marth states that this method of a shallow amalgamated copper vessel was in use at Königsberg while he was a student there under the illustrious Bessel. But, as the vessel was *cup-shaped*, it seems to me a highly inconvenient form for skimming away the film, and ill adapted for the rapid destruction of tremors.

Colonel Tennant, in the same Number of the *Monthly Notices*, refers to an Ephemeris of twelve close circumpolar stars, which issued from the Oxford University Observatory in January of the present year. He complains of the smallness of the stars. Certainly I regret with him that no brighter stars exist in close proximity to the pole; but, on the other hand, I think that eleven out of twelve of these stars are not much inferior to the seventh magnitude, and are described by the late Mr. Carrington in his Redhill Catalogues as visible with a telescopic aperture of one English inch; and they are in constant use for determining the azimuthal error of the Oxford transit instrument with an aperture of less than four inches. Inasmuch as these stars are so selected that, together with those in the *Nautical Almanac*, two close circumpolars at an upper or a lower culmination are provided for every hour, I cannot but think that the arrangement must be very convenient in any Observatory where the assistants are few. I regret that I cannot entirely agree with Colonel Tennant that (even in such a latitude as that of Madras) the azimuth error of a transit instrument can be as accurately obtained from the observation of stars within twelve degrees of the pole as from an Ephemeris of far closer though fainter stars, such as that which we provided at the University Observatory.

1875MNRAS..36...83J

The November Meteors. By the Rev. S. J. Perry, F.R.S.

The weather this year was unfavourable for observing the November meteors, except on the nights of the 11th and 14th. On the 11th, between $13^h\ 30^m$ and 18^h, the sky was very clear, but the moon was full. The only meteors seen were five of the first magnitude, one second, and three fourth. Only two of these were Leonids.

On the 14th the night was somewhat cloudy, but a watch was kept from 10^h till $16^h\ 30^m$, and the following meteors were seen:—

	h		h			
Between	12	and	13,	3	meteors,	1 of which was a Leonid.
„	13	„	14,	3	„	none of which were Leonids.
„	14	„	15,	9	„	4 „ „ „
„	15	„	16,	5	„	1 or 2 „ „ „
„	16	„	16.30,	4	„	all „ „ „

The meteors were all from first to fourth magnitude, the moonlight being too strong for others.

The paths of all the meteors seen were carefully noted.

Stonyhurst Observatory,
1875, *December* 7.

On the Double Star 61 *Geminorum.* By the Rev. S. J. Johnson.

I examined this object with a 4-in. Wray on the night of December 5, the air being very clear and steady. Powers of 300 and 420 brought out the faint companion as a glimpse object. The companion of δ *Geminorum*, rated at the same magnitude by Smyth, and of a more dusky colour and difficult to observe, was quite easy to it. Not having a micrometer, I turned the instrument on δ *Orionis* by way of comparison in point of separation; but the components of 61 *Geminorum* were certainly somewhat wider than this, perhaps about 60″ apart, as Smyth states. Position-angle by estimation about 180°. It seems, therefore, much in the same state of brightness as when Mr. Sadler observed it last spring. Its magnitude now is about the same as that of the distant comes to *Aldebaran*. Owing to the distance agreeing tolerably well, may we not infer that this is the actual object observed by Smyth, that he recorded the angle of position erroneously, and consequently that variability need not be suspected? There are many instances of his marking magnitudes incorrectly, as for example γ *Delphini*.

Upton Helions Rectory, Crediton,
December 7.